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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/518,338	09/09/2005	David L Light	07810.0118.00000	6749

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EXAMINER	
PARVINI, PEGAH	

ART UNIT	PAPER NUMBER
1793	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/518,338	LIGHT ET AL.	
	Examiner	Art Unit	
	PEGAH PARVINI	1793	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *11 February 2008*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-25* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-25* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☒ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2. Claims 1-2 and 6-12 are rejected under 35 U.S.C. 103(a) as being unpatentable over WO 02/16511 to Johns et al. in view of US Patent No. 5,169,443 to Willis et al.

3. Regarding claim 1, Johns et al. teach kaolin particulate and the method of producing the same wherein the kaolin is used in improved super-calendared (SC) paper (Abstract; page 1, lines 3-5 and 25-30; page 2, lines 9-30). Furthermore, the disclosed kaolin has a shape factor of at least 30 and a steepness factor of at least 32 which have overlapping ranges with the ones instantly claimed (page 7, lines 13-15 and 29-31). Additionally, the disclosed kaolin is such that not more than 10% by weight has a particle size of less than 0.25μm and not less than 30% by weight has a particle size of less than 2μm (Abstract; page 2, lines 26-29; page 15, lines 5-10).

With reference to the limitation of about 10-20% having a particle size of less than 0.25μm, it is noted that the instant claim recites “about 10%”, and the word “about” has not been defined in the specification of the instant application and thus permits some tolerance.

As noted above, the reference teaches overlapping ranges of particle size distribution and shape factor with the present claims, and overlapping ranges have been held to establish *prima facie* obviousness. Therefore, it would have been obvious, at the time of the invention, to have selected the overlapping portion of the range because overlapping ranges have been held to establish *prima facie* obviousness. See MPEP § 2144.05.

Johns et al. do not expressly teach that said kaolin is from a secondary kaolin deposit.

Willis et al., drawn to paper coating pigments including kaolin which results in pigments possessing opacification, smoothness, and printability advantages, disclose the use of kaolin crudes of Rio Capim area of Para, Brazil, in pigment production because such crudes are capable of providing delaminated kaolin pigments having both desirable low viscosity and optical properties (Abstract; column 2, lines 60-68). Additionally, Willis et al. disclose that said kaolin deposits contain extensive sedimentary formations (column 5, lines 5-10).

Thus, it would have been obvious to one of ordinary skill in the art, at the time of the invention, to have modified Johns et al. in order to expressly disclose the use of sedimentary kaolin from the Para State region of Brazil motivated by the fact that said kaolin crudes from such deposits provide delaminated kaolin pigments having both desirable low viscosity and optical properties.

4. Regarding claim 2, Willis et al. disclose the use of sedimentary deposits of kaolin from the Rio Capim area of Para, Brazil because of its advantageous properties (column 2, lines 60-65).

5. Regarding claims 6-9, Johns et al. disclose a shape factor of at least 30 (page 7, lines 29-31). It is noted that there is overlapping ranges of shape factor in the reference with the ones instantly claimed in said claims; overlapping ranges have been held to establish *prima facie* obviousness. See MPEP § 2144.05.

6. Regarding claims 10-12, Johns et al. disclose steepness of at least 32 (page 7, lines 13-15), which has overlapping ranges with the ones instantly claimed in claims 10-12; overlapping ranges have been held to establish *prima facie* obviousness. See MPEP § 2144.05

7. Claims 1, 3-9, 13-16, 18, 20-25 are rejected under 35 U.S.C. 103(a) as being unpatentable over US Patent Application Publication No. 2003/0177952 to Cummings et al. in view of WO 02/16511 to Johns et al.

8. Regarding claim 1, Cummings et al. disclose a pigment product for use in a coating composition which provides a gloss coating on paper comprising kaolin particulate which shows improved gloss and brightness when used in paper coating

(Abstract; [0009]). Cummings et al., further, disclose that the kaolin has a particle size distribution such that at least 80% by weight of the particles have an esd (equivalent spherical diameter) less than 2μm and in the range from about 15% to about 40% by weight of the particles have an esd less than 0.25μm and the particles have a shape factor from the range of about 30 to about 60 ([0010]). The kaolin is taken from sedimentary or secondary deposits ([0016], [0022]).

Cummings et al. do not expressly disclose the steepness for kaolin.

Johns et al., as detailed above, disclose kaolin particulate used in SC paper which has a shape factor of at least 30 and a steepness factor of at least 32 wherein the disclosed kaolin is such that not more than 10% by weight has a particle size of less than 0.25μm and not less than 30% by weight has a particle size of less than 2μm (Abstract; page 1, lines 3-5 and 25-30; page 2, lines 9-30; page 7, lines 13-15 and 29-31).

Thus, at the time of the invention, it would have been obvious to one of ordinary skill in the art, at the time of the invention, to modify Cummings et al. in order to include a steepness of at least 32 at that taught by Johns et al. motivated by the fact that Johns et al. disclose that the properties described above for the kaolin (as that disclosed by Johns et al.) results in kaolin with improved performance in SC paper and specially that the defined values of steepness factor and shape factor give a beneficially enhanced combination of high brightness and high porosity and thereby enhances printability (page 8, lines 22-30).

9. Regarding claims 3-4, Cumming et al. disclose that from about 85% to about 95% by weight of the particles have an equivalent spherical diameters, esd, less than about 2μm ([0023]).

10. Regarding claim 5, Cummings et al. disclose that from about 15% to about 40% by weight of the particles of kaolin have an esd less than 0.25μm ([0010]).

11. Regarding claims 6-9, Cummings et al. disclose a shape factor in the range of from about 30 to about 60 as detailed above ([0010]).

12. Regarding claim 13, Cumming et al., as applied to claim 1 above, disclose an increase in the average shape factor of the kaolin clay by at least 10 during the kaolin processing ([0034]; furthermore, the reference disclose an increase in shape factor by a differential of at least about 30 [0036]) in which both have overlapping ranges with the shape factor increase as recited in the instant claim 13.

Nevertheless, it is noted that claim 13 is a product-by-process claim; the limitations directed to the method for producing the claimed composition are not considered to add patentable weight to the examination of the product claims. It is well settled that if the Examiner can find a product in the prior art that is the same or so similar to have been obvious, the burden can be shifted to the Applicant to demonstrate that the process for producing the composition somehow imparts a patentable distinction to the composition under examination.

Furthermore, MPEP § 2113 states:

> "[E]ven though product-by-process claims are limited by and defined by the process, determination of patentability is based on the product itself. The patentability of a product does not depend on its method of production. If the product in the product-by-process claim is the same as or obvious from a product of the prior art, the claim is unpatentable even though the prior product was made by a different process." *In re Thorpe*, 777 F.2d 695, 698, 227 USPQ 964, 966 (Fed. Cir. 1985).

13. Regarding claim 20, Cummings et al., as detailed above and applied to claim 1 above, disclose forming an aqueous suspension of raw kaolin which is gone through a process to processes kaolin which is suitable to be used in coating compositions and paper industry ([0034]); additionally, Cummings et al. disclose the use of binders in said coating composition ([0060]).

14. Regarding claim 21, Cummings et al. disclose solids content in the paper coating composition of greater than about 60% by weight ([0059]).

15. Regarding claim 23, Cummings et al. disclose the use of starch as the binder ingredient ([0061]).

16. Regarding claim 22, Cummings et al. in view of Johns et al. disclose pigment product for use in a coating composition to provide a gloss coating on paper wherein the particle size distribution, shape factor and steepness has overlapping ranges with the ones instantly claimed as detailed above and applied to claims 1 and 20. Furthermore, Cummings et al. expressly disclose that their invention is used in coating compositions

for use in producing gloss coatings on paper and other substrates, which composition comprises an aqueous suspension of a particulate pigment and an adhesive or binder, wherein the pigment comprises the pigment product according to the first aspect of said invention which describes the properties recited above (having overlapping ranges with the ones instantly claimed) ([0058]).

17. Regarding claim 24, Cummings et al. disclose the use of one or more other binders such as latex or polyvinyl acetate or polyvinyl alcohol type in conjunction with starch binder ([0061]).

18. Regarding claim 25, Cumming et al., as applied and noted in detail above for claim 1 and 20, disclose the method of using said kaolin with the properties detailed above as a coating composition to coat a sheet of paper and calendering the paper to form a gloss coating thereon ([0062]).

19. Regarding claim 14, Cummings et al. disclose a pigment product for use in a coating composition which provides a gloss coating on paper comprising kaolin particulate which shows improved gloss and brightness when used in paper coating (Abstract; [0009]). Cummings et al., further, disclose that the kaolin has a particle size distribution such that at least 80% by weight of the particles have an esd (equivalent spherical diameter) less than 2μm and in the range from about 15% to about 40% by weight of the particles have an esd less than 0.25μm and the particles have a shape

factor from the range of about 30 to about 60 ([0010]). The kaolin is taken from sedimentary or secondary deposits ([0016], [0022]). Additionally, Cummings et al. disclose the process of processing raw kaolin comprising the steps of mixing raw or partially processed kaolin with water to from an aqueous suspension, then subjecting the suspension to attrition grinding using a particulate grinding medium by a process in which the average shape factor of the kaolin clay in increased by at least 10, then separating the suspension from particulate grinding medium, and dewatering it ([0034]). Cummings et al., also, disclose blending a coarse kaolin clay with a fine kaolin clay ([0037]).

Even though the Cummings et al. may not expressly disclose the classification step, it would have been obvious to an skilled artisan to classify the suspension to obtain the desired particle size as needed based on the particular application in hand; it is well settled that one of ordinary skill in the art would optimize the desired particle size of processed kaolin based on the end use application.

Cummings et al. do not expressly disclose the steepness for kaolin.

Johns et al., as detailed above, disclose kaolin particulate used in SC paper which has a shape factor of at least 30 and a steepness factor of at least 32 wherein the disclosed kaolin is such that not more than 10% by weight has a particle size of less than 0.25μm and not less than 30% by weight has a particle size of less than 2μm (Abstract; page 1, lines 3-5 and 25-30; page 2, lines 9-30; page 7, lines 13-15 and 29-31). In addition, Johns et al. disclose preparing an aqueous suspension of kaolin,

treating it by attrition grinding using grinding media, and classifying it (page 2, lines 8-19).

Thus, at the time of the invention, it would have been obvious to one of ordinary skill in the art, at the time of the invention, to modify Cummings et al. in order to include a steepness of at least 32 at that taught by Johns et al. motivated by the fact that Johns et al. disclose that the properties described above for the kaolin (as that disclosed by Johns et al.) results in kaolin with improved performance in SC paper and specially that the defined values of steepness factor and shape factor give a beneficially enhanced combination of high brightness and high porosity and thereby enhances printability (page 8, lines 22-30).

20. Regarding claim 15, Cummings et al. disclose that the coarse kaolin clay used may be classified, for example, by using a centrifuge ([0038]).

21. Regarding claim 16, Cumming et al. as applied to claim 14 above, disclose mixing raw or partially processed kaolin clay with water to form a suspension, attrition grinding said suspension using a grinding medium, separating, and dewatering the suspension as noted above. Again, regarding classifying, even though the reference may not expressly disclose the classification step, it would have been obvious to an skilled artisan to classify the suspension to obtain the desired particle size as needed based on the particular application in hand; it is well settled that one of ordinary skill in the art would optimize the desired particle size of processed kaolin based on the end

use application. Nevertheless, Johns et al. disclose classifying particle size after attrition grinding of the aqueous suspension of kaolin (page 2, lines 8-19).

22. Regarding claim 18, Cumming et al. disclose that as a result of the above described process, the shape factor is increase by at least 10, or it may increase by at least about 30 ([0034], [0036]).

23. Claim 2 is rejected under 35 U.S.C. 103(a) as being unpatentable over Cummings et al. in view of Johns et al. as applied to claim 1 above, and further in view of US Patent No. 5,169,443 to Willis et al.

24. Regarding claim 2, Cumming et al. in view of Johns et al. disclose kaolin having particle size distribution, shape factor and steepness factors which have overlapping ranges with the ones instantly claimed.

Although Cummings et al. disclose the use of secondary or sedimentary deposits of kaolin in USA and although discloses the existence of similar kaolin deposits not only in the USA but also in Brazil and elsewhere, the combination of the above references do not expressly disclose the use of kaolin from the Para State region of Brazil.

Willis et al., drawn to paper coating pigments including kaolin which results in pigments possessing opacification, smoothness, and printability advantages, disclose the use of kaolin crudes of Rio Capim area of Para, Brazil, in pigment production because such crudes are capable of providing delaminated kaolin pigments having both

desirable low viscosity and optical properties (Abstract; column 2, lines 60-68). Additionally, Willis et al. disclose that said kaolin deposits contain extensive sedimentary formations (column 5, lines 5-10).

Thus, it would have been obvious to one of ordinary skill in the art, at the time of the invention, to have modified Cumming et al. in view of Johns et al. in order to expressly disclose the use of kaolin from the Para State region of Brazil motivated by the fact that said kaolin crudes from such deposits provide delaminated kaolin pigments having both desirable low viscosity and optical properties.

25. Claim 17 is rejected under 35 U.S.C. 103(a) as being unpatentable over Cummings et al. in view of Johns et al. as applied to claims 14 and 16 above, and further in view of US Patent No. 6,003,795 to Bown et al.

26. Regarding claim 17, Cumming et al. in view of Johns et al. disclose kaolin having particle size distribution, shape factor and steepness factors which have overlapping ranges with the ones instantly claimed as detailed above.

Cummings et al. and Johns et al., even tough disclosing attrition grinding, do not expressly disclose attrition grinding in multiple stages.

Bown et al., drawn to improved method for preparing an aqueous suspension of an inorganic particulate material, wherein after treating said material, it may be used as a paper coating pigment (column 1, lines 1-5; column 2, lines 52-57). Bown et al,

further, disclose that it is highly desirable for pigments incorporated into paper coating compositions to have a particle size distribution such that a major portion of the particles have an esd of less than 1μm because such finely divided pigments makes it possible to produce coated paper having very good smoothness and gloss (column 1, lines 19-25). Thus, Bown et al. disclose preparing a concentrated aqueous suspension of a finely ground particulate material by a multistage grinding process, such as at least three grinding stages (column 2, lines 17-21; column 3, lines 15-20; column 4, lines 5-30).

Therefore, it would have been obvious to one of ordinary skill in the art to modify Cummings et al. in view of Johns et al. in order to expressly disclose a multistage grinding as that taught by Bown et al. motivated by the fact that this provides finely pigment particles which are advantageous in paper coating composition as detailed above.

27. Claim 19 is rejected under 35 U.S.C. 103(a) as being unpatentable over Cummings et al. in view of Johns et al. as applied to claim 14 above, and further in view of US Patent No. 5,089,056 to Shi et al.

Regarding claim 19, Cummings et al. in view of Johns et al. as applied to claim 14 above, disclose kaolin used in paper coating compositions having shape factor, steepness, and particle size distribution which has overlapping ranges with the instant claims.

Cummings et al. in view of Johns et al. do not expressly disclose treating the kaolin particle suspension with a bleaching agent.

Shi et al., drawn to opacifying pigments with enhanced light scattering properties for use as a paper coating or filler material which are produced from kaolin, disclose the use of leaching the reaction product with iron reducing agent such as sodium hydrosulfite to remove discoloring constituents (Abstract; column 1, lines 6-9, and 55-60; column 2, lines 1-10).

Therefore, at the time of the invention, it would have been obvious to modify Cummings et al. in view of Johns et al. in order to include the use of a leaching agent such as sodium hydrosulfite motivated by the fact that kaolin, as well settled in the art, contains many discoloring constituents and impurities not desirable for paper coating compositions which need to be removed from kaolin suspension.

Response to Arguments

Applicant's arguments, see page 13, filed February 11, 2008, with respect to the rejection(s) of claim(s) 1-25 under Title 35 U.S.C 103(a) have been fully considered and with reference to the teaching of Golley et al. regarding the shape factor range are persuasive. Therefore, the rejection has been withdrawn. However, upon further consideration, a new ground(s) of rejection is made as detailed above.

Nevertheless, with respect to Applicants' argument regarding the term "about 26", it is noted that Applicants have not defined the term "about" to exclude 25.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to PEGAH PARVINI whose telephone number is (571)272-2639. The examiner can normally be reached on Monday to Friday 8:00am-4:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jerry Lorengo can be reached on 571-272-1233. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Michael A Marcheschi/
Primary Examiner, Art Unit 1793

/P. P./
Examiner, Art Unit 1793